

RESEARCH ARTICLE



Follow-up after acute poisoning by substances of abuse: a prospective observational cohort study

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ABSTRACT

Objective: To chart follow-up of patients after acute poisoning by substances of abuse, register whether patients referred to specialist health services attended, and whether patients contacted a general practitioner (GP) after the poisoning episode.

Design: Observational cohort study.

Setting: A primary care emergency outpatient clinic in Oslo, Norway.

Subjects: Patients ≥ 12 years treated for acute poisoning by substances of abuse were included consecutively from October 2011 to September 2012.

Main outcome measures: Follow-up initiated at discharge, proportion of cases in which referred patients attended within three months, and proportion of cases in which the patient consulted a GP the first month following discharge.

Results: There were 2343 episodes of acute poisoning by substances of abuse. In 391 (17%) cases the patient was hospitalised, including 49 (2%) in psychiatric wards. In 235 (10%) cases the patient was referred to specialist health services, in 91 (4%) advised to see their GP, in 82 (3%) to contact social services, in 74 (3%) allotted place in a homeless shelter, and in 93 (4%) other follow-up was initiated. In 1096 (47%) cases, the patient was discharged without follow-up, and in a further 324 (14%), the patient self-discharged. When referred to specialist health services, in 200/235 (85%) cases the patient attended within three months. Among all discharges, in 527/1952 (27%) cases the patient consulted a GP within one month. When advised to see their GP, in 45/91 (49%) cases the patient did.

Conclusion: Attendance was high for follow-up initiated after acute poisoning by substances of abuse.

KEY POINTS

- Despite poor long-term prognosis, patients treated for acute poisoning by substances of abuse are frequently not referred to follow-up.
- Nearly all patients referred to specialist health services attended, indicating the acute poisoning as an opportune moment for intervention.
- Advising patients to contact their GP was significantly associated with patients consulting the GP, but few patients were so advised.
- One out of three patients was discharged without follow-up, and there seems to be an unused potential for GP involvement.

ARTICLE HISTORY

Received 15 February 2016
Accepted 5 May 2016

KEYWORDS

Alcoholic intoxication; drug overdose; general practice; Norway; poisoning; primary health care; referral and consultation; substance related disorders

Introduction

Acute poisoning constitutes a major health problem and is mainly due to suicidal behaviour or related to substance abuse. Irrespective of intention, the long-term mortality is increased among patients treated for acute poisoning.[1] Unnatural and natural causes of death are both increased compared to the general

population, and patients with substance use disorders are found to be at special risk.[2–5]

The acute poisoning is a moment of crisis. It is also an opportunity for intervention. Still, despite their poor prognosis, patients treated for acute poisoning associated with substance abuse are frequently not referred to follow-up.[6–9] Furthermore, referral is only the first

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step. Studies of patients screened for substance use disorders and referred to follow-up from emergency departments, show attendance rates in the range of 35–53%.^[10–12] To our knowledge, there are no studies specifically regarding referral at the time of an acute poisoning by substances of abuse.

As most patients with substance use disorders are treated in primary care,^[9,13–15] general practitioners (GPs) are well positioned for follow-up of patients after an acute poisoning. In addition, GPs have a pivotal role in co-ordinating treatment and services for patients with substance use problems, as well as delivering long-term health services for these patients. Brief interventions and brief treatment based on motivational interviewing are effective in reducing hazardous drinking and substance use, and suited for delivery by GPs.^[16,17] In a Norwegian focus group study, GPs did not consider screening a useful tool for identifying patients with alcohol problems, but rather used pragmatic case finding.^[18] In both this and another similar study, GPs found alcohol related hospital admissions to be key opportunities for addressing patients' alcohol problems.^[18,19] However, we are not aware of any studies concerning the extent of GP involvement in the follow-up of patients immediately after acute poisoning by substances of abuse.

Objectives

We charted follow-up initiated at the episode of acute poisoning. Furthermore, we wanted to study whether the patients referred to specialist health services attended at the institution they were referred to and to what extent GPs were involved in follow-up. In addition, we studied referral and attendance rates related to age, gender, intention and toxic agent, and factors associated with GP contact.

Material and methods

The study was a prospective observational cohort study. Patients were included consecutively during one year, to encompass seasonal variations, from 1 October 2011 to 30 September 2012.

Setting

The study was done at the Oslo Accident and Emergency Outpatient Clinic (OAEOC) in Oslo, Norway. Oslo is the capital city of Norway, with a population of 613,285 as per 1 January 2012.^[20] The OAEOC is a municipal non-hospital based emergency outpatient

clinic, with limited diagnostic resources. It is the City of Oslo's main casualty clinic and comprises an emergency general practice service, a trauma clinic, a psychiatric emergency service and an emergency social service. The physicians employed at the OAEOC are mostly registrars/residents. The OAEOC serves the entire city at all hours, and has about 200,000 consultations a year. In Oslo, the majority of patients with acute poisoning by substances of abuse are treated at the OAEOC.^[6,21] The physician treating the patient, or a social worker from the Emergency Social Service, decides the level of follow-up after an episode of acute poisoning. There is no standardised method to decide what kind of follow-up should be initiated. Currently, for technical reasons, physicians at the OAEOC cannot send information electronically to GPs. Consequently reports are not routinely sent to the patients' GP after treatment at the OAEOC. However, patients are given a paper copy of the medical record when discharged.

Inclusion and exclusion criteria

All patients 12 years and older treated at the OAEOC for an acute poisoning by substances of abuse were included. Patients treated for other conditions in addition to poisoning, were included if the poisoning itself was serious enough to warrant treatment or observation. Patients were included by the physician treating them. In addition, we systematically searched the electronic patient lists and included any eligible patients missed, hence not included at the time of the poisoning episode. Patients were excluded if they did not have a Norwegian national identity number. During the inclusion period, there were 3139 cases of acute poisoning (about 1.6% of all contacts at the OAEOC), yielding 2343 included cases in 1731 patients (Figure 1).

Data collection

For all included cases, the physician treating the patient completed a preset one-page paper registration form, registering demographic data, toxic agents, intention, other services involved at the OAEOC, and follow-up initiated. The form took about two minutes to complete. We gathered any available information missing in the registration form from the electronic medical records. Data on contacts with the specialist health services were retrieved from the Norwegian Patient Register (NPR). The NPR registers all patient contacts in Norwegian hospitals and specialist health services. Data on consultations with GPs were retrieved from the Control and Payment of Reimbursements to

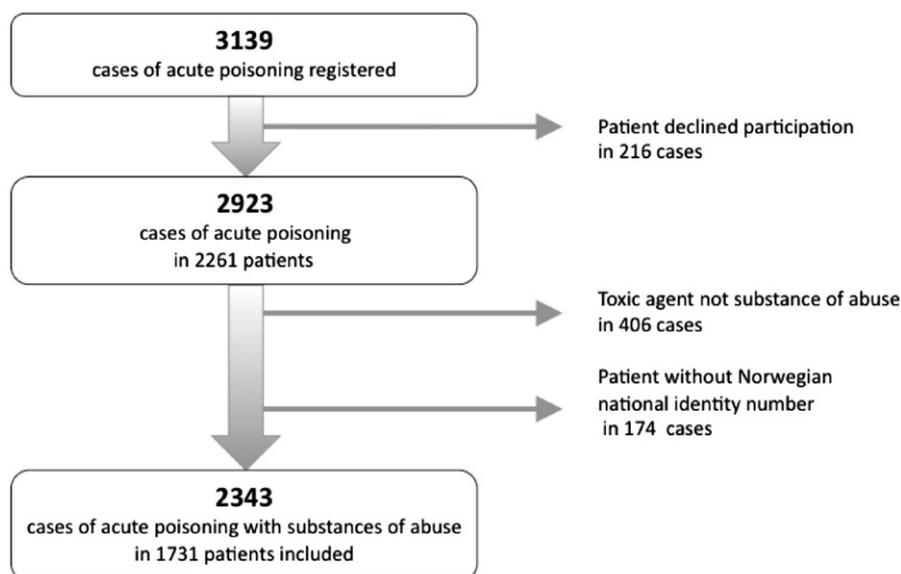


Figure 1. Participants, inclusion, and exclusion.

Health Service Providers (KUHR) database of the Norwegian Health Economics Administration (HELFO). Norwegian GPs and primary care casualty clinics report all their patient contacts to the KUHR database. The data from both registers were extracted based on the patient's unique Norwegian national identity number. We collated the data from the registers and the registration forms in an electronic database.

Outcome measures

The main outcome measures were follow-up initiated at discharge from the OAEOC, proportion of cases in which referred patients attended the specialist health services within the first three months, and proportion of cases in which the patient consulted a GP within the first month following discharge. Follow-up initiated was registered on the registration form. Patients transferred to hospital were categorised as admitted to somatic or psychiatric hospital. Follow-up initiated for patients discharged from the OAEOC was categorised as referred to addiction emergency clinic, referred to addiction outpatient clinic, referred to psychiatric outpatient clinic, advised to contact general practitioner, advised to contact municipal social services, allotted place in homeless shelter, or other follow-up. Patients who absconded or left the OAEOC against medical advice were categorised as having self-discharged. In all other cases the patient was categorised as discharged without follow-up. We also registered whether patients discharged without further follow-up were seen by the Psychiatric Emergency Service or the Emergency Social Service at the OAEOC before

discharge. Seeing these services were not considered follow-up, as they are resources available only for acute assessment and treatment at the OAEOC. If the patient did not want any follow-up, this was registered, and the patient was categorised as discharged without follow-up regardless of the category of follow-up that would otherwise have been initiated.

Additional measures were date of the poisoning episode, the patient's age and gender, main toxic agent, and whether the poisoning was a suicide attempt. The main toxic agent (categorised as ethanol, opioids, benzodiazepines, central stimulants, GHB, or other) was defined as the agent considered most toxic in the doses taken. The physician made the diagnosis, based on all available information. Suicide attempt was defined as a poisoning with any degree of suicidal intent, according to the assessment of the physician.

For presentations to the specialist health services, we registered the date of the first presentation following discharge, type of institution (addiction emergency clinic, addiction outpatient clinic, or psychiatric outpatient clinic), and type of contact with the addiction emergency clinic (admission or outpatient treatment).

For consultations with GPs, we registered the date and diagnosis of the first consultation following discharge. Only face-to-face consultations were registered. Diagnoses were coded in the International Classification of Primary Care (ICPC-2). We categorised the diagnoses of the GP consultations as from the P-chapter (psychiatry and substance use) of the ICPC-2, or not. The data from the KUHR database did not differentiate between contacts at casualty clinics and GP contacts. To avoid classifying casualty clinic contacts as

GP contacts, data from the KUHR database was checked against contacts at the OAEOC and at the only other municipal casualty clinic in Oslo. Any contact registered in the KUHR database on the same date as a contact in the casualty clinic patient records, was considered a casualty clinic contact and discarded. For the same reason, we did not include contacts reported to the KUHR database on weekends and public holidays, when regular GPs are closed.

Statistics

Analyses were done in IBM SPSS version 21 (IBM Corp.) and in an online calculator from EpiTools epidemiological calculators (<http://epitools.ausvet.com.au>).^[22] Chi-square test was used to compare frequencies. The Mann–Whitney *U*-test was used to compare continuous variables. Logistic regression analysis was conducted to estimate odds ratios for factors associated with presenting to a GP. The multivariate analysis was done using simultaneous forced entry. Ethanol was chosen as the reference group when estimating odds ratios for main toxic agents, as it was the largest group. Age was treated as a continuous variable. As age did not follow the normal distribution, median and interquartile range (IQR) were used as descriptive statistics.

Ethics

The study was performed in accordance with the Helsinki declaration and approved by the Regional Committee South East for Medical and Health Research Ethics (REK no. 2010/1129-1) and the Oslo University Hospital Information Security and Privacy Office.

Results

There were 2343 episodes of acute poisoning by substances of abuse during one year. In 391 (17%) cases the patient was hospitalised, including 49 (2%) in psychiatric wards. In 235 (10%) cases the patient was referred to specialist health services, and in 91 (4%) cases the patient was advised to see their GP (Table 1). In 1096 (47%) cases the patient was discharged without follow-up, and in a further 324 (14%) cases the patient self-discharged.

Among the patients discharged without follow-up, in 304/1096 (28%) cases the patient was seen by the Emergency Social Service at the OAEOC before discharge, and in 11/1096 (1%) cases by the Psychiatric Emergency Service (Table 2). In 362/1096 (33%) cases the patient did not want any follow-up.

Table 1. Follow-up initiated after treatment for acute poisoning by substances of abuse.

	Addiction emergency clinic n (%)	Addiction outpatient clinic n (%)	Psychiatric outpatient clinic n (%)	General practitioner n (%)	Social services n (%)	Homeless shelter n (%)	Other follow-up n (%)	Discharge without follow-up ^b n (%)	Self discharge n (%)	Total cases ^c n (%)
Males	89 (77)	22 (50)	39 (52)	56 (62)	63 (77)	56 (76)	65 (70)	727 (66)	224 (69)	1312 (67)
Age ^a	45 (34–54)	37 (23–46)	28 (22–46)	39 (29–54)	49 (32–62)	39 (31–48)	30 (22–43)	33 (22–47)	42 (29–52)	37 (24–49)
Suicide attempt	8 (7)	4 (9)	36 (48)	11 (12)	4 (5)	–	2 (2)	5 (<0.5)	12 (4)	78 (4)
Main toxic agent										
Ethanol	74 (64)	18 (41)	29 (39)	51 (56)	41 (50)	13 (18)	42 (45)	751 (69)	187 (58)	1188 (61)
Opioids	25 (22)	10 (23)	13 (17)	18 (20)	28 (34)	53 (72)	26 (28)	192 (18)	88 (27)	437 (22)
Benzodiazepines	8 (7)	6 (14)	27 (36)	13 (14)	7 (9)	2 (3)	11 (12)	46 (4)	14 (4)	129 (7)
Central stimulants	5 (4)	6 (14)	2 (3)	5 (5)	2 (2)	3 (4)	6 (6)	48 (4)	14 (4)	90 (5)
GHB	2 (2)	2 (5)	1 (1)	2 (2)	1 (1)	–	4 (4)	22 (2)	12 (4)	45 (2)
Other/unknown	2 (2)	2 (5)	3 (4)	2 (2)	3 (4)	3 (4)	4 (4)	37 (3)	9 (3)	63 (3)
Total cases ^c	116 (100)	44 (100)	75 (100)	91 (100)	82 (100)	74 (100)	93 (100)	1096 (100) ^b	324 (100)	1952 (100)

^aMedian (IQR).

^bIncluding 362/1096 (33%) cases in which the patient did not want any follow-up.

^cIn each case, the patient may have been referred to more than one category of follow-up. There was no overlap in referrals to addiction emergency clinic, addiction outpatient clinic and psychiatric outpatient clinic.

Table 2. Cases in which the patient was discharged without follow-up.

	Seen by Psychiatric Emergency Service before discharge <i>n</i> (%)	Seen by Emergency Social Service before discharge <i>n</i> (%)	Patient did not want any follow-up <i>n</i> (%)	All other discharges not offered follow-up <i>n</i> (%)	Total discharged without follow-up <i>n</i> (%)
Males	5 (45)	168 (55)	260 (72)	308 (70)	727 (66)
Age ^a	45 (32–56)	20 (19–22)	42 (30–52)	37 (27–49)	33 (22–47)
Suicide attempt	4 (36)	1 (<0.5)	2 (1)	1 (<0.5)	5 (<0.5)
Main toxic agent					
Ethanol	5 (45)	228 (75)	231 (64)	296 (67)	751 (69)
Opioids	3 (27)	40 (13)	77 (21)	80 (18)	192 (18)
Benzodiazepines	–	9 (3)	18 (5)	21 (5)	46 (4)
Central stimulants	3 (27)	13 (4)	17 (5)	19 (4)	48 (4)
GHB	–	3 (1)	14 (4)	5 (1)	22 (2)
Other/unknown	–	11 (4)	5 (1)	21 (5)	37 (3)
Total	11 (100) ^b	304 (100)	362 (100) ^c	442 (100)	1096 (100)

^aMedian (IQR).^bAmong these 11 cases, two were also seen by the Emergency Social Service.^cAmong these 362 cases, four were seen by the Psychiatric Emergency Service, and 17 by the Emergency Social Service.**Table 3.** Cumulative attendance rates for cases in which the patient was referred to specialist health services.

	Within one week <i>n</i> (%)	Within one month <i>n</i> (%)	Within three months <i>n</i> (%)	Did not present <i>n</i> (%)	Total referrals <i>n</i> (%)
Addiction emergency clinic ^a	101 (87)	104 (90)	105 (91) ^b	11 (9)	116 (100)
Addiction outpatient clinic	19 (43)	30 (68)	35 (80)	9 (20)	44 (100)
Psychiatric outpatient clinic	36 (48)	49 (65)	60 (80)	15 (20)	75 (100)
Total	156 (66)	183 (78)	200 (85)	35 (15)	235 (100)

^aIn 89/116 (77%) cases, the patient presented the same or following day.^bIn 84/105 (80%) cases the patient was admitted, the remaining 21/105 (20%) were treated as outpatients.

Among the patients referred to specialist health services, in 200/235 (85%) cases the patient attended within three months following discharge (Table 3). There were no significant differences in age, gender distribution, main toxic agents or proportion of suicide attempts between the patients who attended and those who did not.

Among the patients discharged from the OAEOC, including the self-discharges, in 527/1952 (27%) cases the patient consulted their GP during the first month following the poisoning episode; 194/1952 (10%) within the first week. In 91 cases the patient was advised at discharge to contact their GP, among whom 45/91 (49%) consulted the GP during the first month, including 24/91 (26%) within the first week. Among the patients discharged without follow-up, in 266/1096 (24%) cases the patient consulted their GP during the first month, including 92/362 (25%) who stated at discharge they did not want any follow-up. Among the patients who self-discharged, in 77/324 (24%) cases the patient consulted their GP during the first month. Being advised to contact a GP was the factor most strongly associated with consulting a GP (adjusted odds ratio 2.52, 95% CI 1.61–3.92), followed by benzodiazepines as main toxic agent (adjusted odds ratio 2.08, 95% CI 1.35–3.20) and female gender (adjusted odds ratio 1.83, 95% CI 1.47–2.28) (Table 4). In 261/527 (50%) cases, the diagnosis in the first consultation with the GP was from the P-chapter of the ICPC-2.

Among the patients transferred to hospital from the OAEOC, in 101/391 (26%) cases the patient consulted their GP during the first month following the acute poisoning, similar to the proportion among the patients discharged from the OAEOC ($p = 0.68$).

Discussion

Only 10% of the patients treated for acute poisoning by substances of abuse were referred to specialist health services. A vast majority of 85% of the referred patients attended within three months. Among the patients discharged from the OAEOC, one out of four consulted a GP within the first month following the acute poisoning. The factor most strongly associated with consulting a GP was being advised to do so at discharge. In nearly half of the cases the patient was discharged without follow-up, of whom one out of three stated they did not want any. In an additional 14% of cases the patient self-discharged.

Limitations

No standardised method for deciding the level of follow-up was used in this study. However, local guidelines at the OAEOC contain advice in keeping with established good clinical practice. We did not differentiate between ensuring that patients already were in

Table 4. Factors associated with consulting a GP within the first month following acute poisoning with substances of abuse.

	n (%)	GP consultation n (%)	Crude			Adjusted		
			Odds ratio	95% CI	p	Odds ratio	95% CI	p
Gender								
Males ^a	1312 (67)	307 (23)	–	–	–	–	–	–
Females	640 (33)	220 (34)	1.72	1.39–2.11	<0.001	1.83	1.47–2.28	<0.001
Age ^b	–	–	1.01	1.00–1.02	0.015	1.01	1.00–1.02	0.002
Suicide attempt ^c	78 (4)	38 (49)	2.69	1.71–4.24	<0.001	1.09	0.62–1.91	0.78
Main toxic agent								
Ethanol ^a	1188 (61)	295 (25)	–	–	–	–	–	–
Opioids	437 (22)	119 (27)	1.13	0.88–1.45	0.33	1.24	0.95–1.62	0.11
Benzodiazepines	129 (7)	58 (45)	2.47	1.71–3.58	<0.001	2.08	1.35–3.20	0.001
Central stimulants	90 (5)	29 (32)	1.44	0.91–2.28	0.12	1.57	0.98–2.53	0.062
GHB	45 (2)	10 (22)	0.87	0.42–1.77	0.69	0.95	0.46–1.98	0.89
Other/unknown	63 (3)	16 (25)	1.03	0.58–1.85	0.92	1.08	0.60–1.97	0.79
Referred to specialist health services ^c	235 (12)	93 (40)	1.94	1.46–2.57	<0.001	1.70	1.24–2.34	0.001
Advised to contact GP ^c	91 (5)	45 (49)	2.80	1.83–4.28	<0.001	2.52	1.61–3.92	<0.001
Advised to contact social services ^c	82 (4)	17 (21)	0.70	0.41–1.20	0.19	0.67	0.38–1.17	0.15
Allotted place in homeless shelter ^c	74 (4)	25 (34)	1.40	0.86–2.29	0.18	1.45	0.86–2.43	0.17
Self-discharged ^c	324 (17)	77 (24)	0.82	0.62–1.08	0.15	0.91	0.68–1.23	0.55
Total cases	1952 (100)	527 (27)	–	–	–	–	–	–

Statistically significant adjusted odds ratios are listed in bold types.

The adjusted odds ratios were adjusted for all the other variables included in the table. CI: confidence interval; GP: general practitioner.

^aReference group.

^bContinuous variable.

^cThe reference groups are: not suicide attempt, not referred/advised/allotted, or not self-discharged (reference groups not shown).

treatment in the specialist health services and new referrals initiated at the time of poisoning. That some patients already were in treatment may have contributed to the high attendance rates. Some patients may still have been on waiting lists for their first appointment three months after the poisoning. Thus, a larger proportion may eventually have presented.

We did not chart the content of the GP consultations any closer than registering diagnosis. The diagnosis set at a GP consultation does not necessarily reflect the entire content of the consultation. Consultations with diagnoses not from the ICPC-2 P-chapter may still have addressed the recent acute poisoning. On the other hand, a consultation with a diagnosis from the ICPC-2 P-chapter may have addressed other psychiatric or substance use issues and not the poisoning episode at all.

We do not know whether the patients advised to contact the social services actually did so, neither do we know whether allotted places in homeless shelters were used. The diagnosis of toxic agents was based on clinical assessment and report from the patients and their companions. Though this gives room for misclassification, we consider the agent categories in our study fairly distinguishable.

Referral and attendance

The patients treated for acute poisoning by substances of abuse at the OAEOC encompass, amongst others, young adult binge drinkers, older adults with severe alcohol problems, injecting heroin and amphetamine

users, and patients overdosing on benzodiazepines with suicidal intention.[21] The variation in the initiated follow-up probably reflects tailored advice suiting differing needs among the patients. However, only 10% of patients in our study were referred, and there are probably non-referred patients who would have benefited from referral.

Nearly all referred patients presented to the institution they were referred to within three months. This should encourage emergency services to continue referring patients deemed to be in need of treatment in the specialist health services. A UK study found a missed initial appointment rate in psychiatry services overall of 16%, though higher (25–37%) in services for alcohol and drug problems.[23] In another UK study, 35% of patients identified as having an alcohol problem by screening high-risk patients in an emergency department attended an appointment made with an alcohol health worker.[10] Patients who acknowledged that their emergency department visit was alcohol related were more likely to attend.[24] In a US study, 50% of patients similarly recruited attended the intervention,[11] as did 53% in a Spanish study of patients referred from a psychiatric emergency room to an outpatient drug clinic.[12] The high attendance rate in our study may result from the acute poisoning episode being an opportune moment for referral, as the emergency department visit obviously was related to the patient's alcohol and/or substance use. Another possible explanation for the high attendance rate is that the rather few referred patients were a select group,

referred because they were explicitly motivated for treatment.

GP involvement

One out of four patients consulted their GP during the first month. This is in keeping with another Norwegian study, where 27% of patients reported that the GP was their most important health service contact after hospital treatment of acute poisoning.[25] In our study, this proportion was doubled among the patients advised to contact their GP. Still, remarkably few patients were so advised. Shortage of time on busy shifts is a possible explanation. However, in current practice, advising patients to see their GP does not require a formal referral and can hardly be considered a time consuming procedure. We suspect that in many cases the GP was simply not thought of. Even when excluding the patients who stated they did not want any, as many as one out of three patients were discharged without follow-up. Thus, there is probably an unused potential for GP involvement following acute poisoning with substances of abuse, and advising patients to contact their GP seems a promising remedy. We find it reassuring that a substantial proportion of patients discharged without further follow-up were seen by the Emergency Social Service before discharge, and that most patients discharged without further follow-up after a suicide attempt were seen by the Psychiatric Emergency Service. Seeing a psychiatrist or social worker before discharge constitutes improved care, probably offered a group of patients considered to be in special need. Still, in light of the excess mortality and morbidity in the patient group as a whole,[1–5] we think more patients should be advised to contact their GP.

Measures could also be taken to facilitate establishing contact between the patient and their GP shortly after an acute poisoning. Active referral strategies increased the attendance to self-help groups from 33% to 56% in a UK study.[26] In a Norwegian study, structured follow-up by GP of patients after suicide attempt by poisoning led to more frequent consultations addressing psychosocial issues, better adherence to treatment and improved patient satisfaction,[27] though no improvement was found in reported symptoms or repeated self harm.[28] Currently, as no information is automatically sent to GPs from the OAEOC, patients advised to contact their GP would have to make this contact themselves and bring a copy of the OAEOC medical record. Possibly, a more referral-like process, e.g. sending the medical record to the patient's GP directly from the OAEOC, could lead to

more patients being followed up. In a Norwegian focus group study, GPs considered it pivotal to the follow-up of patients with alcohol problems to receive information on hospital admission for acute poisoning or other alcohol related conditions.[19] Establishing procedures for improving hospital and/or casualty clinic communication with GPs after acute poisoning by substances of abuse is a subject in need of future research.

Patients treated for acute poisoning with benzodiazepines were more likely to see their GP the first month following the poisoning episode. A possible explanation is that these patients in general see their GP more often and are prescribed benzodiazepines for the conditions they regularly see their GP for. Another possibility is that these patients frequently see their GP in order to get prescriptions to supply their misuse of benzodiazepines. In either case, the GP may be the source of the benzodiazepines taken in the acute poisoning. The potential of prescription drugs as substances of abuse and toxic agents is yet another reason for informing GPs about their patients having been treated for acute poisoning.

Female patients were also more likely to see their GP after the acute poisoning episode. This may be a reflection of women, in general, seeing their GP more often than men.[20] Furthermore, a patient knowing her GP from previous consultations may be more prone to make contact after an acute poisoning than a patient who has hardly seen his GP before. It is also possible that some of the patients advised to see their GP themselves suggested this as a suitable form of follow-up.

Conclusion

Only 10% of patients treated for acute poisoning by substances of abuse were referred to specialist health services, and a mere 4% were advised to see their GP. However, attendance rates were high for follow-up initiated at the time of acute poisoning. Nearly all patients referred to specialist health services after acute poisoning by substances of abuse attended, as did half of the patients advised to see their GP. Thus, the acute poisoning seems to be an opportune moment for intervention. More patients could possibly benefit from follow-up in the specialist health services. Furthermore, there seems to be an unused potential for advising patients to contact their GP after an acute poisoning with substances of abuse, and we would encourage emergency services to do so. Future research could seek to establish and evaluate structured procedures for involving GPs in follow-up.

Acknowledgements

We thank the physicians at the OAEOC for including patients and registering data, and the Norwegian Patient Register (NPR) and the Norwegian Health Economics Administration (HELFO) for providing data.

Disclosure statement

The authors report no conflicts of interest.

Funding

The study was funded by the Norwegian Research Fund for General Practice.

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